

PAEWG-01-08

First Meeting of the Protected Areas and Ecosystems Working Group (PAEWG1)

18-19 March 2019, Yokohama, Japan

Proposal for a Research and Management Plan for the ‘Walters Shoal’ protected area

Relates to agenda item: 4

Working paper Info paper

Delegation of Australia

Abstract

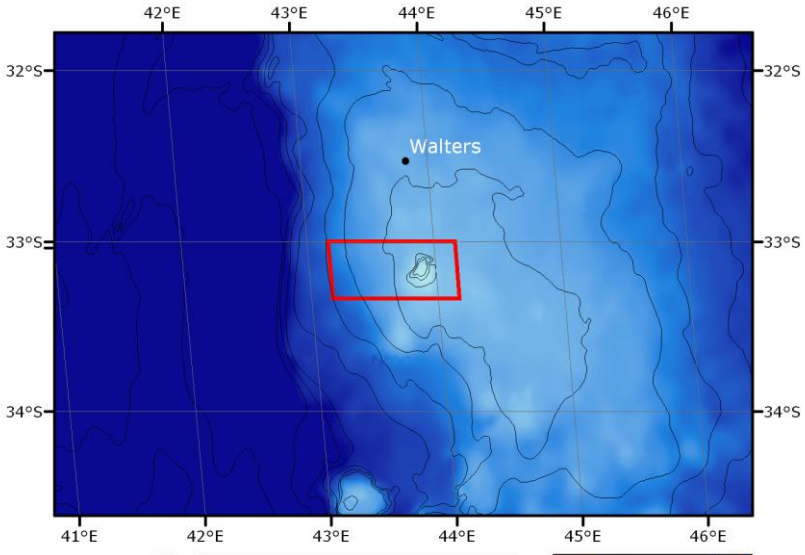
The purpose of this paper is to propose a Research and Management Plan for the Walters Shoal protected area, as designated by the SIOFA Meeting of the Parties in June 2018. The proposed research and management plan has been developed based on the Guidance for SC recommendations to the Meeting of the Parties (which is part of the [SIOFA standard protocol for protected areas designation, Annex H SC3 report](#)). It is recommended that the PAEWG1 meeting consider this proposal in the context of the draft framework to design research and management plans for SIOFA Benthic Protected Areas (PAEWG-01-04(XX) and SC-04-06(XX)) and the SIOFA spatial clustering analysis to inform protected area networks (PAEWG-01-04(XX) and SC-04-06(XX)), and potentially use these papers for refinement of this proposal.

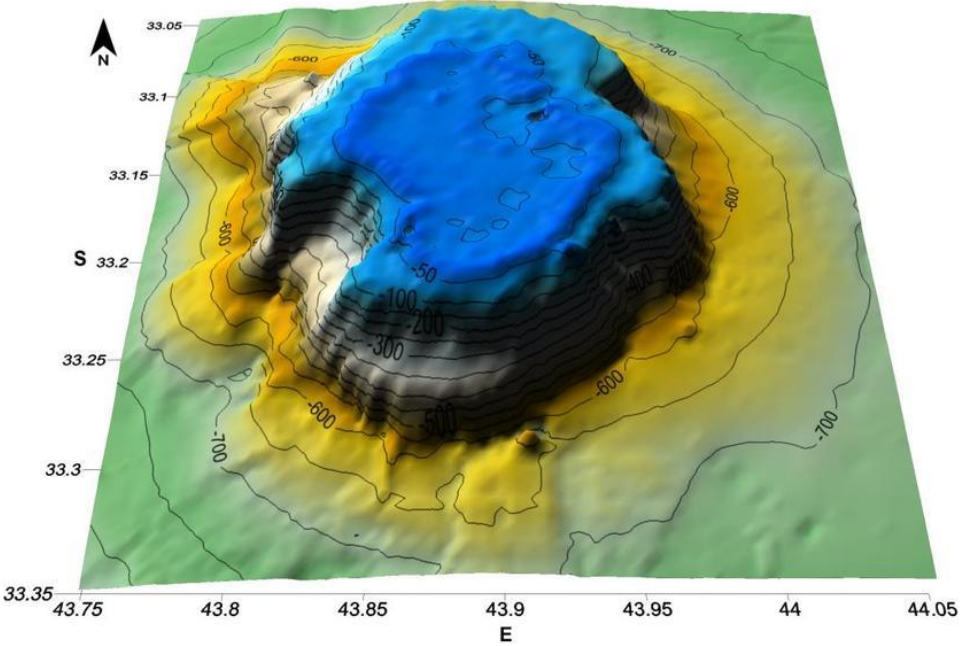
Recommendations *(working papers only)*

It is recommended that the PAEWG:

- **Note** that the Walters Shoal feature has been designated as a protected area because it meets the following criteria in the SIOFA protected areas designation protocol: 3b. Bioregional representation – The area has a comparatively higher degree of naturalness due to zero or a low level of human-induced disturbance or degradation from, for example, historical fishing activity; 5b. Biodiversity representation – The area is known to contain high diversity of ecosystems, habitats, communities or species, or has higher genetic diversity; and 6. Scientific interest – The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SIOFA region.
 - **Recall** the Guidance for SC Recommendations to the Meeting of the Parties outlined in the standard protocol for protected areas designation (Annex H SC3 report), which states that:
 - *If the proposal documents the necessary data and scientific information to support a protected area using protocol, different measures could be applied, such as management measures, technical measures, closures.*
 - *In case of an area becoming protected, a management and research plan shall be associated to it on the year to come. It will include:*
 - *The measures in place in the protected area;*
 - *The time of review of the protected area;*
 - *If needed, the research that should be undertaken in the area.*
 - **Consider** whether the proposed Research and Management Plan for the Walters Shoal Protected Area meets the requirements outlined in the Guidance for SC Recommendations to the Meeting of the Parties (Annex H SC3 report), and if these requirements have been met, **recommend** that the SC recommend to the Meeting of the Parties that the proposed research and management plan be adopted for the Walters Shoal protected area.
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Research and management plan for the Walters Shoal protected area

Name	Walters Shoal
Geographic description	<p>Total area: 3,443 km²</p> <p>Coordinates: 33° 00'N-43° 10'W : 33° 20'S -44°10'E</p> <p>Bathymetry: 01-100 m 88 km²; 100-300 m 104 km²; 300-700 m 557 km²; 700-1000 m 1,980 km²; 1000-1500 m 670 km²; >1500 m 42 km²</p> <p>Figure 1 Map showing location and bathymetry of the Walters Shoal</p>  <p>The map displays bathymetric contours for Walters Shoal, with a red rectangle indicating the proposed BPA boundary. The map includes a coordinate grid from 41°E to 46°E and 32°S to 34°S. A scale bar shows distances up to 120 miles. An inset map shows the location of Walters Shoal in the South Indian Ocean. The legend defines symbols for Land, Seamounts, Oceanographic features, GEBCO Depth Contours, Continental shelf (200m depth), Proposed BPAs, and Approx. 200 nm limits. The map is projected using Eckert IV Equal-Area projection (FAO, 2006).</p>

	<p style="text-align: center;">Figure 2 Bathymetric map</p>  <p style="text-align: center;">Source: Payne 2015</p>
<p>Objectives for this protected area</p>	<p>In line with the protocol for protected areas designation, the objectives for the Walters Shoal protected area are to maintain the value and integrity of the area’s bioregional representation, biodiversity representation and scientific interest.</p>
<p>Objectives for this plan</p>	<p>In accordance with the Guidance for SC Recommendations to the Meeting of the Parties outlined in the standard protocol for protected areas designation (Annex H SC3 report), the objectives for this research and management plan are to describe:</p> <ul style="list-style-type: none"> - Management measures in place in the protected area - The time of review of the protected area - If needed, the research that should be undertaken in the area.
<p>Criteria that the protected area meets</p>	<p>This area meets the following criteria:</p> <ul style="list-style-type: none"> • <u>3b. Bioregional representation</u> – The area has a comparatively higher degree of naturalness due to zero or a low level of human-induced disturbance or degradation from, for example, historical fishing activity. • <u>5b. Biodiversity representation</u> – The area is known to contain high diversity of ecosystems, habitats, communities or species, or has higher genetic diversity. • <u>6. Scientific interest</u> – The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SIOFA region. <p><u>Feature description</u></p> <p>This feature is located near the southern end of the Madagascar Ridge and consists of a spreading plateau with canyons, seamounts and ridges with depths rising from 4500 m to within 15 m of the surface (Rogers 2012).</p>

Biodiversity and bioregional representation

Walters Shoal was sampled in 1964 during the International Ocean Expedition by the R/V *Anton Bruun*, which led to the discovery of several invertebrates (Payne 2015). Clark (1972) described a new endemic sub-species of crinoid, *Comanthus wahlbergi tenuibrachia* (currently *Comanthus wahlbergi*). Kensley (1975) described a new endemic isopod, *Jaeropsis waltervadi*. Kensley (1969, 1981) described an endemic species of shrimp, *Alpheus waltervadi*, and the presence of four other decapods. Various corals were collected in 1976 using the French vessel *Marion Dufresne* (Zibrowius 1982). Many fishery resources (and some crustaceans) were also found by French and Soviet vessels (Collette and Parin 1991; Romanov 2003; Rogers et al. 2009). Collette and Parin (1991) describe the discovery of fishery resources in more detail. Nesis (1994) describes cephalopod species found in on, over or around the seamount. A number of endemic fish species were discovered and described by Poss and Collette (1990), Collette et al. (1991) and Iwamoto et al. (2004). Early work on the distribution patterns of Walters Shoal benthic and water-column fauna were undertaken (e.g. Parin et al. 1993 and Detonova and Sagaidachny (1994) but these are reportedly inaccessible (Payne 2015).

More recently, a commercial fishing trip on board the Spanish vessel *Iannis* led to the discovery of a new species of lobster, *Palinurus barbarae*, as described by Groeneveld et al (2006). The research vessel *Dr Fridtjof Nansen* undertook a research cruise in 2009 aimed at understanding pelagic biology and physical oceanography of the region, and included a sampling point near the Walters Shoal seamount (Rogers et al. 2009). Mah (2018) describes two new starfish species discovered during the 2017 *Marion Dufresne* expedition on Walters Shoal – *Iphaster noemieae* (new genus and new species) and *Sphaeriodiscus ganae* (new species), with these new species most probably endemic to the Walters Shoal.

Le Corre et al. (2012) note that Walters Shoal is an important foraging ground for the red-tailed tropicbird and Barau's petrel.

It provides a habitat for a variety of whale species, including sperm whales, humpback whales and short-finned whales (Collette and Parin 1991; Rogers et al. 2009; Shotton 2006).

Scientific interest

There is a long history of scientific research associated with the Walters Shoal feature (see Payne et al. 2015 for a comprehensive review). More recently, the IUCN undertook a research voyage in 2016 on the shallows of the Madagascar Ridge MAD-Ridge 2016 Expedition, South-West Indian Ocean to analyse the hydrodynamics, hydrology and trophic levels (first and intermediate), and in April–May 2017 undertook a 26 day research trip to Walters Shoal to obtain information on the benthic component and "water column", and the pelagic and avian fauna. The voyage included video recordings (see <https://www.iucn.org/theme/marine-and-polar/our-work/international-ocean-governance/conservation-seamounts-ecosystems/ffem-swio-project/walters-shoal-expedition> for links to this project).

	<p>Exploration of scientific results from the IUCN Walters Shoal expedition are still ongoing. A first estimate is that there have been about 100 new species collected among the benthic samples and that about half of them are endemic to Walters Shoal (Guduff et al. 2018).</p> <p><u>Fishing history</u></p> <p>The broader Walters Shoal area is considered to be a productive fishing ground (see Zucchi et al. 2018 for additional detail).</p> <p>The protected feature is known to have been trawled on the western side in the past and bottom fished in the shallow areas (SIODFA 2016). Lobster fishing has also been reported in shallow areas of sandy bottom (SIODFA 2016).</p> <p>Romanov (2003) provides a summary and review of Russian and Ukrainian scientific and commercial fishing operations on the deepwater ridges of the southern Indian Ocean.</p>
<p>Social, cultural and economic interests</p>	<p>Some historical fishing data are available (e.g. Romanov 2003), which may assist with understanding any social, cultural and/or economic costs associated with designation of this protected area. The area is the location of a productive fishery. Designation could have adverse social, cultural or economic impacts in terms of forgone opportunity for fishing.</p>
<p>Management measures</p>	<p>In accordance with CMM 2018/01, the following management measures apply:</p> <p><i>35. The areas included in Annex 2 are provisionally designated as protected areas.</i></p> <p><i>36. CCPs shall provisionally apply the following measures in the areas listed on Annex 2 until the adoption of a dedicated research and management plan, referred to in paragraph 6(e), for each area at MoP6:</i></p> <p><i>(a) CCPs shall prohibit all vessels flying their flag from engaging in bottom fishing, excluding line and trap methods; and</i></p> <p><i>(b) For all other gears, CCPs shall ensure each vessel flying their flag has a scientific observer onboard at all times while fishing inside those areas.</i></p> <p><i>37. When the Meeting of the Parties adopts a revised SIOFA protocol for protected area designation after advice from the Scientific Committee arising from its review referred to in paragraph 6(d), the Meeting of the Parties shall also review Annex 2 of this CMM, taking into account advice of the Scientific Committee.</i></p> <p>All other relevant SIOFA CMMs apply within this protected area.</p>
<p>Management needs</p>	<p>SC3 recommended that the MoP consider that fishing with all gears were identified as activities that may degrade the scientific and biodiversity value of the area. Given that fishing is still permitted within the area, the following management needs have been identified using the draft SIOFA framework for the design of research and management plans for Benthic Protected Areas:</p> <ul style="list-style-type: none"> - FOR PAEWG DISCUSSION <p>Guduff et al. (2018) note a number of management and governance options for the Walters Shoal (see https://www.iddri.org/en/publications-and-events/report/laying-foundations-management-seamount-beyond-national-jurisdiction).</p>

Review periods	Given the compelling justification for closure to fishing using trawl gears, designation should be reviewed at least every 10 years, or more frequently if new information becomes available that enhances or degrades the justification for its designation as a protected area.
Outline of monitoring and/or research needs	<p>The following monitoring and/or research needs have been identified using the draft SIOFA framework for the design of research and management plans for Benthic Protected Areas:</p> <p style="text-align: center;">- FOR PAEWG DISCUSSION</p> <p>Goldsworthy (2017) recommended that it would be useful to review the findings of the 2015 and 2016 IUCN research voyages to review any additional information on the biodiversity, habitat and ecosystems of the feature. (https://www.iucn.org/theme/marine-and-polar/our-work/international-ocean-governance/conservation-seamounts-ecosystems/ffem-swio-project/walters-shoal-expedition).</p> <ul style="list-style-type: none"> - A desk-top compilation of publications from research undertaken within this area would assist with future reviews of the designation. <p>Guduff et al. (2018) recommend a series of steps in relation to strengthening scientific knowledge of the Walters Shoal, including:</p> <ul style="list-style-type: none"> - Collection of referential data (seabed mapping, conservation, fishing and mining exploration/exploitation zones, zones with a potential for covering vulnerable marine ecosystems etc.) - Sampling and inventory of benthic and pelagic fauna, marine avian and megafauna etc. - Measure of environmental conditions (temperature, current, vertical profiles in the water column etc.) - Listing and details on commercial and non-commercial species, stock assessment and monitoring of low productivity species <p>IUCN (2013) lists a series of knowledge gaps to fill on physical, ecological and connectivity aspects.</p>
Compliance	Compliance-related issues are outside of the remit of the SIOFA SC.

References

- Clark AM, 1972. Some crinoids from the Indian Ocean. *Bulletin of the British Museum (Natural History)*, 24(2), pp. 73-156.
- Collette, B.B. & N.V. Parin. 1991. Shallow-Water Fishes of Walters Shoals, Madagascar Ridge. *Bulletin of Marine Science*, Volume 48, Number 1, January 1991, pp. 1-22(22)
- Detinova, N.N. & A. Yu Sagaidachny. 1994. Vertical distribution of bottom fauna on the slope of the Walters Shoal (Madagascar Ridge). *Trans. of the P.P. Shirshov Inst. Oceanology*. 129:17-30.
- Geinrikh, A.K. 1995. Vertical distribution of copepods in the area of Walters Shoals (southwestern Indian Ocean). *Oceanology* 35(3). (Cited in SIODFA paper but full citation not provided.)
- Goldsworthy, L 2017, Review of SIODFA Proposed Benthic Protected Areas, Report prepared for the Australian Government Department of Agriculture and Water Resources, Lyn Goldsworthy AM, November 2017.
- Gon, O. & P.C. Heemstra (eds). 1990. Fishes of the Southern Ocean. Johannesburg: Macmillan South Africa.
- Groeneveld, J., S. Steph, R. Tiedemann, D. Garbe-Schönberg, D. Nürnberg & A. Sturm. Pliocene development of east-Pacific hydrology as revealed by Mg/Ca analyses on the planktic foraminifer *Globigerinoides sacculifer*. ODP Scientific Results, Leg 202. Chapter 209.
- Guduff, S, Rochette, K, Simard, F, Spadone, A & Wright, G 2018, Laying the foundations for management of a seamount beyond national jurisdiction: A case study of the Walters Shoal in the South West Indian Ocean, IDDRI, IUCN & FFEM, available online at <https://www.iddri.org/en/publications-and-events/report/laying-foundations-management-seamount-beyond-national-jurisdiction>
- IUCN, 2013. Seamounts Project: An Ecosystem Approach to Management of Seamounts in the Southern Indian Ocean. Gland, Switzerland: IUCN. 60 pp, reports on two research voyages to the South West Indian Ridge, which included Atlantis Bank, Coral Seamount and Middle of What Seamount.
- Iwamoto, T., Shcherbachev, Y.N. & Marquardt, B., 2004. Grenadiers (Gadiformes, Teleostei) of Walters Shoals, Southwestern Indian Ocean, with description of a new "West-Wind Drift" species. *Proceedings of the California Academy of Sciences*, 55(10), pp. 190-207.
- Kensley, B., 1969. Decapod Crustacea from the South-West Indian Ocean. *Annals of the South African Museum*, 52(7), pp. 149-181.
- Kensley, B. (1975), Marine Isopoda from the continental shelf of South Africa. *Annals of the South African Museum* 67 (4): 35-89.
- Kensley, B. (1981) On the zoogeography of southern African decapod Crustacea, with a distribution checklist of the species. *Smith Contrib Zool* 338:64.
- Le Corre, M., Jaeger, A., Pinet, P., Kappes, M.A., Weimerskirch, H., Catry, T., Ramos, J.A., Russell, J.C., Shah, N. & Jacquemet, S., 2012. Tracking seabirds to identify potential marine protected areas in the tropical Western Indian Ocean. *Biological Conservation*, 156, pp. 83-93.
- Mah, CL 2018, New genera, species and occurrence records of Goniasteridae (Asteroidea; Echinodermata) from the Indian Ocean, *Zootaxa* 4539, 116pp. ISBN 978-1-77670-571-9
- Nesis, K.N., 1994. Teuthofauna of Walters Shoals, a seamount in the Southwestern Indian Ocean. *Ruthenica*, 4(1), pp. 67-77.
- Parin, N.V., K.N. Nesis, A.Yu. Sagaidachny & Yu. N. Shcherbachev. 1993. Fauna of Walters Shoals, a seamount in the Southwestern Indian Ocean. *Trans. (Trudy) of the P.P. Shirshov Inst. Oceanology*. 128:199-216.

Payne, R 2015. Taxonomy and diversity of the sponge fauna from Walters Shoal, a shallow seamount in the Western Indian Ocean region, University of the Western Cape. Thesis for M.Sc. https://www.researchgate.net/publication/316220893_Taxonomy_and_diversity_of_the_sponge_fauna_from_Walters_Shoal_a_shallow_seamount_in_the_Western_Indian_Ocean_region

Poss, S.G. & Collette, B.B., 1990. *Scorpaenodes immaculatus*, a new species of scorpionfish (Osteichthyes: Scorpaenida) from Walters Shoals, Madagascar Ridge. *Proceedings of the Biological Society of Washington*, 103(3), pp. 543-549.

ROGERS, A.D., ALVHEIM, O., BEMANAJA, E., BENIVARY, D., BOERSCH-SUPAN, P.H., BORNMAN, T., CEDRAS, R., DU PLESSIS, N., GOTHEIL, S., HOINES, A., KEMP, K., KRISTIANSEN, J., LETESSIER, T., MANGAR, V., MAZUNGULA, N., MØRK, T., PINET, P., READ, J. & SONNEKUS, T., 2009. *Cruise report "Dr. Fridtjof Nansen" southern Indian Ocean seamounts (IUCN/ UNDP/ ASCLME/ NERC/EAF Nansen Project 2009 Cruise 410) 12th November – 19th December, 2009* Gland, Switzerland: International Union for the Conservation of Nature.

Rogers, A.D. 2012. An Ecosystem Approach to Management of Seamounts in the Southern Indian Ocean: Volume 1 – Overview of Seamount Ecosystems and Biodiversity. Gland, Switzerland, IUCN, for a history of scientific exploration in the region.

Rogers A.D. & M.L. Taylor. 2012. Benthic biodiversity of seamounts in the southwest Indian Ocean Cruise report – R/V James Cook 066 Southwest Indian Ocean Seamounts expedition – November 7th – December 21st, 2011. 235pp. http://www-odp.tamu.edu/publications/prelim/176_PREL/176OBJT.HTML

Romanov, E.V., 2003. Summary and review of Soviet and Ukrainian scientific and commercial fishing operations on the deepwater ridges of the southern Indian Ocean. FAO Fisheries Circular No. 991. Rome, Italy: FAO.

Shotton, R., 2006. *Management of demersal fisheries resources of the southern Indian Ocean*. FAO Fisheries Circular No. 1020. Rome, Italy: FAO.

SIODFA 2016, Southern Indian Ocean Deepwater Fisheries Association (SIODFA), Benthic Protected Areas in the Southern Indian Ocean. SIODFA Technical Report XVII 16/01. 40 pp

Zibrowius, H., 1982. Deep-water scleractinian corals from the South-Western Indian Ocean with crypts excavated by crabs, presumably Hapalocarcinidae. *Crustaceana*, 43(2), pp. 113-120.